STATE OF TENNESSEE
DEPARTMENT OF HEALTH
ANDREW JOHNSON TOWER, 5TH FLOOR
710 JAMES ROBERTSON PARKWAY
NASHVILLE, TENNESSEE 37243

BILL LEE
GOVERNOR

RALPH ALVARADO, MD, FACP
COMMISSIONER

March 2, 2023

The Honorable Rusty Crowe
Chair, Health and Welfare Committee of the Senate
425 Rep. John Lewis Way N.
Suite 720 Cordell Hull Bldg.
Nashville, TN 37243

Dear Chairman Crowe:

Pursuant to Tennessee Code Annotated § 53-10-309, the Tennessee Prescription Safety Act of 2016, the Controlled Substance Monitoring Database Committee provides the enclosed report of the Controlled Substance Monitoring Database (CSMD) for calendar year 2022. The report contains statistical information and programmatic highlights from the past year that include enhancements to inform practitioners, increase efficiency, share data across state borders, and increase patient safety.

Key points include:

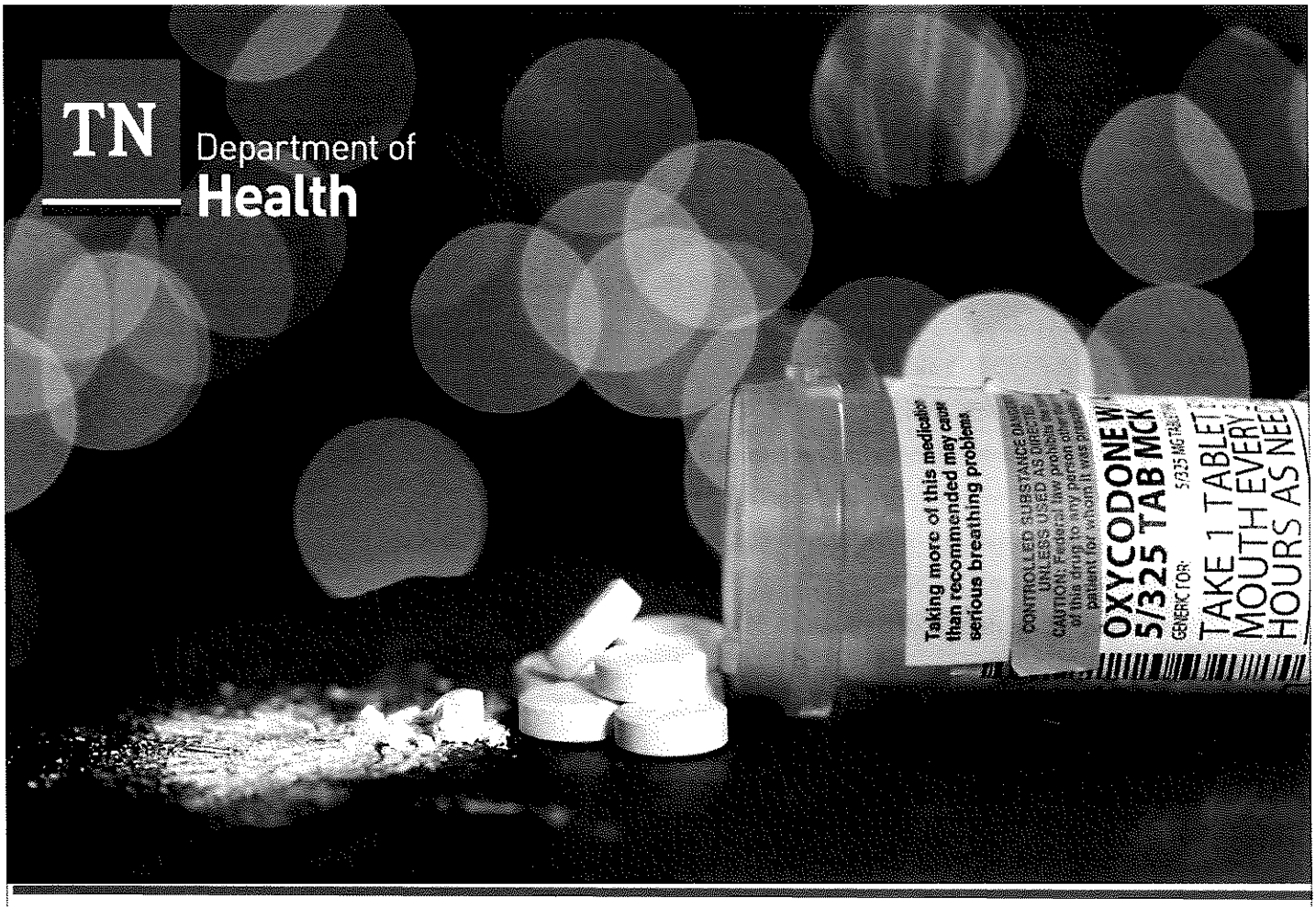
- Based on the current CDC analytics logic, MMEs prescribed and dispensed to patients in Tennessee has decreased 60% from 2015 to 2022.
- The number of potential doctor shoppers has decreased 92% from 2015 to 2022.
- The number of opioid prescriptions for pain has decreased by 44% from 2015 to 2022.
- The number of benzodiazepine prescriptions for has decreased by 32% from 2015 to 2022.
- Since 2015, the number of controlled substance prescriptions reported to the CSMD has decreased 16%.
- Gateway Electronic Health Record (EHR)/Pharmacy Management System workflow integration continues to increase across the state providing controlled substance prescribers and pharmacists the ability to integrate CSMD information into their clinical workflow.

This report will also be made available at https://www.tn.gov/health/health-program-areas/statistics/tn-doh-publications.html

Thank you for your consideration of this report. Please do not hesitate to contact me if you have any questions.

Sincerely,

Ralph Alvarado, MD, FACP
Commissioner



Controlled Substance Monitoring Database

2023 Report to the 113th Tennessee General Assembly

Tennessee Department of Health | Health Licensure & Regulation | March 1, 2023

Contents

Tennessee Department of Health Key Points Related to the Drug Epidemic

The Tennessee (TN) Controlled Substance Monitoring Database (CSMD) is a Prescription Drug Monitoring Program (PDMP) designed to provide healthcare practitioners with a comprehensive view of a patient's history of controlled substance prescriptions. The CSMD contains prescription information from all dispensers of controlled substances in Tennessee, including Veterans Health Administration (VHA) pharmacies in Tennessee. The CSMD collects and maintains dispensing data regarding all controlled substances in Schedules II, III, IV, and V controlled substances.

The purpose of the CSMD is to increase the quality of patient care by equipping healthcare practitioners with accurate, timely information that the practitioners can use to determine when patients acquiring controlled substances may require counseling or intervention for substance abuse, by collecting and maintaining data regarding all controlled substances in Schedules II, III, and IV dispensed in this state, and Schedule V controlled substances identified by the controlled substance database committee as demonstrating a potential for abuse. Further, the database is to be used to assist in research, statistical analysis, criminal investigations, enforcement of standards of health professional practice, and state or federal laws involving controlled substances.

In accordance with the Controlled Substance Monitoring Act of 2002, the CSMD was established. Data collection began for all dispensers on December 1, 2006. The Prescription Safety Acts (PSA) of 2012 and 2016 enhanced the monitoring capabilities of the database especially with mandatory registration and use starting in 2013. The CSMD became timelier and more meaningful in 2016 when data for human patients had to be submitted at least once every business day for all the controlled substances dispensed, but no later than the close of business on the following business day. Additional changes to the laws affecting the database were made by Tennessee Together legislation, which increased the frequency for mandatory checks of the CSMD for prescribing and dispensing of opioids and benzodiazepines from every twelve (12) months to every six (6) months. Prescribers and pharmacists can access prescription information from greater than half of the states in the US, in addition to the US Department of Defense.

This 2022 CSMD report is designed to provide the General Assembly with an update on activities and outcomes related to the substance abuse crisis as it pertains to the CSMD and the Tennessee Department of Health (TDH). The CSMD Committee reports annually on the outcome of the program with respect to its effect on distribution and abuse of controlled substances, along with recommendations for improving control, prevention, and minimizing diversion of controlled substances.

PDMPs, like Tennessee's CSMD, are the cornerstone to state-level interventions to improve prescribing of controlled substances, to inform clinical practice, and to protect at-risk patients. Provision of accurate and timely dispensing information is essential to critical clinical decision making which can provide safe and effective treatment of pain.

Key Analytical Findings:

- Morphine Milligram Equivalents (MME) prescribed and dispensed to patients in TN has decreased by 60%. (2015-2022)
- Number of potential doctor shoppers has decreased by 92%. (2015-2022)
- Number of opioid prescriptions for pain has decreased by 44%. (2015-2022)

Key Highlights for CSMD in 2022:

- The number of controlled substance prescriptions reported to the CSMD continues to decrease.

- Response time for searches in the CSMD was less than one second if the request did not include data from another state.
- Gateway integration with Electronic Health Record (EHR) and Pharmacy Management System workflows has been widely adopted across the state enabling users to provide more direct-to-patient care.
- CSMD is embracing connections to the RxCheck Hub, a federally supported PDMP data sharing system that supports interstate data sharing and EHR integration.

Considerations for 2023:

- Fatal drug overdoses in TN have increased rapidly, exacerbated by the effects of the COVID-19 pandemic. While increases in overdoses continue to be primarily related to illicit substances such as fentanyl and methamphetamine, inappropriate use of prescription drugs still poses a major risk to Tennesseans.
- Opioids typically obtained through a prescription for pain relief were involved in 645 overdose deaths in 2021, an 8% increase from 2020.
- Among all opioid-related overdose deaths in 2021, 17% also involved benzodiazepines, highlighting the critical importance of avoiding concomitant use of opioids and benzodiazepines.
- In 2021, 45% who died of drug overdose involving opioids and benzodiazepines had any controlled substance dispensed within 60 days of death. Among people who died of an overdose involving pain relievers, only 30% had an opioid prescription. Among those who died of an overdose involving benzodiazepines, only 34% had a benzodiazepine prescription within 60 days of death. This reinforces the need for a three-pronged approach of prevention, treatment, and enforcement in improving the epidemic.

Trends in Drug Overdose Deaths in Tennessee and the Role of the CSMD

TDH uses methodology established by the Centers for Disease Control and Prevention (CDC) to understand and describe drug overdose deaths in our state (CDC, 2016)[1]. Data from Vital Statistics indicates from 2020 to 2021, drug overdose deaths in Tennessee rose by 26%, increasing from 3,032 to 3,814.[2] The proportion of drug deaths in 2021 that involved opioids remained high (80%). The increase in opioid overdose deaths is primarily driven by deaths involving illicit fentanyl. For several years, deaths involving opioids identified as pain relievers (i.e., those typically obtained through a prescription) were declining but increased slightly (8%) from 2020 to 2021 (17% of all overdose deaths in 2021). However, after several years of increases, deaths involving heroin have decreased (50%) significantly (4% of all overdose deaths in 2021). Overdose deaths involving illicit opioids increased substantially from 2018. The number of overdose deaths in which fentanyl was involved increased 36% between 2020 and 2021, from 2,014 to 2,734, accounting for 72% of all drug overdose deaths in 2021. Deaths involving any stimulants have consistently increased over the past five years: a 245% increase from 2017 to 2021. Deaths involving stimulants other than cocaine, a category that includes primarily deaths involving methamphetamine, have increased substantially over this period (40% of all overdose deaths in 2021). Deaths associated with benzodiazepines remained relatively stable from 2020 (15% of all overdose deaths in 2021). Deaths that included a combination of benzodiazepines and opioids have

[1] Rudd RA, Seth P, David F, Scholl L. Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015. MMWR Morb Mortal Wkly Rep 2016;65:1445–1452. DOI: http://dx.doi.org/10.15585/mmwr.mm655051e1

[2] 2021 Tennessee Drug Overdose Death Report. https://www.tn.gov/content/dam/tn/health/documents/pdo/2021_Tennessee_Drug_Overdose_Deaths.pdf

increased slightly (a 2% increase) from 2020; in 2021, 17% of opioid associated deaths also included a benzodiazepine. Deaths involving both opioids and stimulants have also increased over the past five years. In 2021, 77% of stimulant-involved deaths also involved an opioid. Of these deaths (n=1,555), the opioid most frequently involved was fentanyl (94%).

Concomitant improvements in a number of measures of good medical practice, including reductions in the amount of opioids prescribed and dispensed, fewer doctor shoppers, and increased utilization of the CSMD suggest that increased awareness among the medical community and statewide interventions may have lessened the impact of prescription drugs on overdose mortality. Among individuals who died of drug overdose in 2021, 27% had a controlled substance dispensed within 60 days of death, a decrease from 31% the year before. This downward trend has been consistent, year over year since 2013, and suggests that other factors are playing a significant role in the increasing opioid overdose deaths, such as illicit fentanyl, stimulants, and diverted prescription opioids.

TDH is committed to improving the way CSMD data are used to help curb the epidemic of overdose in Tennessee. The Office of Informatics and Analytics (OIA) maintains the Integrated Data System (IDS) which combines data from the CSMD with other patient health data to identify key markers for increased risk of overdose. Epidemiologists at TDH have conducted a number of studies and are developing several tools using these linked data to better understand patient trajectories as they move from prescription drugs into the illicit market, and to better understand what puts Tennesseans at higher risk for overdose and death. With these data, policy and prevention, and intervention programs, treatment can be targeted more specifically to intervene early, when recovery is easier and more likely to be successful.

In addition, OIA has developed a data driven method of identifying prescribers who may be engaging in high risk prescribing or who have high risk patient populations. The first high risk prescriber lists were created in 2019, and the method continues to undergo refinement to better identify risky prescribing. Work also continues to identify patients at high risk of overdose, and the department has partnered with researchers at Vanderbilt University Medical Center (VUMC) to apply advanced machine learning techniques to better predict overdose risk among Tennesseans. The initial phase of this work has concluded, and in the next year, OIA will begin to integrate these advanced models into the IDS. In the next year, TDH also plans to launch enhanced prescriber reports to registered CSMD users that leverage the power of OIA's analytics and data linkage efforts to provide prescribing and overdose information back to Tennessee's prescribers.

TDH is working closely with a number of other departments, including the Tennessee Department of Mental Health and Substance Abuse Services (TDMHSAS) and the Tennessee Bureau of Investigation (TBI), to respond to the epidemic. Through these partnerships, TDH is providing county-level data to stakeholders in communities across Tennessee. Overdose and controlled substance prescribing data has been invaluable for planning and resource allocation for TDH and TDMHSAS prevention and response projects.

OIA produces several public annual reports that present data on overdoses and prescribing throughout Tennessee that are greatly enhanced by the addition of CSMD data.

- The annual Tennessee Drug Overdose Death Report includes information on fatal overdose and decedent prescription histories using CSMD data and is released when data are finalized in September.
- The annual Drug Overdose Hospital Discharge Report includes information on nonfatal overdoses for patients who were seen at a TN hospital and is released on March 1.
- The Tennessee Annual Overdose Report is an omnibus report that includes additional fatal and nonfatal overdose information, prescription trends, and project updates, and is released in mid-February.

These reports, including associated slides and infographics, can be found at: https://www.tn.gov/health/health-program-areas/pdo/pdo/facts-figures.html. In late 2020, OIA released a special report on buprenorphine to provide an in depth look at prescription and patient trends as well as buprenorphine involvement in fatal overdoses and buprenorphine prescribing before and after nonfatal overdoses. A special report on stimulant prescriptions and overdoses is planned to be released in 2023.

OIA also produces an interactive online dashboard that includes overdose and prescription information and can be found at this address: https://www.tn.gov/health/health-program-areas/pdo/pdo/data-dashboard.html. The drug overdose data dashboard underwent a significant overhaul to enhance its usefulness and visual appeal and relaunched in late summer 2020. The new version of the dashboard was designed to accommodate more frequent updates to the data and content.

Weekly Hospital and Emergency Medical Services (EMS) Data

In 2020, approximately nine (9) nonfatal overdoses were identified in discharge data from state emergency departments and hospitals for every drug overdose death. The proportion of these hospital visits due to opioids has steadily increased, with a particularly substantial increase in heroin related nonfatal overdoses in recent years.[3] OIA estimates at least 15% of overdose decedents in 2021 had a nonfatal overdose in the year before their death (not published).

These overdoses are treated in emergency departments and hospitals, but information about overdoses is not currently available to clinicians outside the hospital or through the CSMD. In 2016, Public Chapter 959 provided the Commissioner with the opportunity to require healthcare facilities to provide TDH with near real-time data on nonfatal drug overdoses. Such a data collection system was implemented in 2017, with a pilot project involving 11 hospitals. The Drug Overdose Reporting system (DOR) is now in its active stage, with 117 hospitals reporting to TDH from across the state. Opioid drug overdose was included on the Tennessee Reportable Disease List in 2019.[3] From the pilot stage through 2019, hospitals have only been required to report opioid overdoses. The Tennessee Reportable Disease List was expanded in 2020, and hospitals are now asked to report overdoses involving a number of other substances of concern, specifically stimulants, benzodiazepines, and muscle relaxants. In 2021, new opioid codes were expanded to capture fentanyl and tramadol. In 2022, The Tennessee Reportable Disease List was expanded again, and hospitals are now asked to report overdoses involving cannabis and hallucinogens to capture overdose more accurately across the state. This expanded range of reporting provided better insights into the changing nature of Tennessee's overdose epidemic and potentially reveal timely trends in overdoses that equip the state to respond to new and emerging threats.

Preliminary estimates show that overdoses seen in a hospital are reported, on average, just over a week after the patient is discharged, making DOR one of the fastest sources of overdose information available to the department. This speed makes DOR data one of the department's most important tools for planning and resource allocation for overdose response. Overdoses reported to DOR are used in several regular data briefs that are shared with regional epidemiologists, including information on those overdoses associated with active CSMD prescriptions. As of Fall 2019, record-level DOR data have been made available to regional and metro health departments to guide local response efforts. In Fall 2020, TDH began to make monthly reports on statewide DOR data available to the public.[4]

[3] Tennessee Reportable Disease List. https://www.tn.gov/health/cedep/reportable-diseases.html

[4] Drug Overdose Facts & Figures. https://www.tn.gov/health/health-program-areas/pdo/pdo/facts-figures.html

Additionally, TDH convenes a biweekly multi-agency workgroup made up of several divisions across TDH, the TDMHSAS, the TBI, and others to discuss current temporal and geographic trends in the overdose data. These meetings play a vital role in state agency situational awareness and offer a valuable opportunity for state overdose stakeholders to share challenges, successes, and support.

Unfortunately, TDH does not currently have a reliable estimate of the number of overdoses which are managed in the field where the patient refuses transport to the hospital. TDH expects that this represents an even larger number of nonfatal overdoses that are not currently being systematically tracked. In order to overcome this gap, the OIA is actively working with the Office of Emergency Medical Services to obtain statewide emergency medical service data on overdoses seen in the field. Once these data are available, TDH anticipates creating a number of reports and public health surveillance products that will better inform stakeholders about the prevalence and trends in nonfatal overdose throughout the state.

TDH continues to explore ways to provide patient overdose information from these sources back to providers so that they might have additional patient history data to make better informed decisions about opioid prescribing. In 2023, TDH plans to launch enhanced prescriber reports to registered users of the CSMD. These reports are expected to include information on patients of the prescribers who have overdoses that have been reported to TDH.

Neonatal Abstinence Syndrome Surveillance Update

TN hospitals have been required to report cases of infants with Neonatal Abstinence Syndrome (NAS) to TDH since 2013. The rate of NAS increased slightly, following 2 years of consecutive decline. The number of cases of NAS increased slightly (2%) from 810 in 2019 to 824 in 2020.[5] A majority of the mothers of these infants report exposure to prescription medications, most of which is attributable to prescribed buprenorphine or methadone for Medication-Assisted Treatment (MAT). Regional variations of reported NAS births align with the known geographic distribution of buprenorphine prescriptions for MAT.[6]

Number of Registrants in the CSMD

The PSA of 2012 facilitated a substantial increase in CSMD utilization, and the PSA of 2016 and other legislation further expanded the requirement for a mandatory CSMD check by healthcare practitioners. Year after year, the CSMD continues to have moderate increases in the number of registrants. By the end of 2022, the number of registrants had grown to 64,717 (increase of 5.4% from 2021).

[5] Neonatal Abstinence Syndrome Surveillance Annual Report 2019
www.tn.gov/content/dam/tn/health/documents/nas/NAS-Annual-Report-2020.pdf

[6] TN Buprenorphine Report.
https://www.tn.gov/content/dam/tn/health/documents/pdo/2020%20Buprenorphine%20Report_11.30.pdf

Number of Registrants in the CSMD, 2015-2022

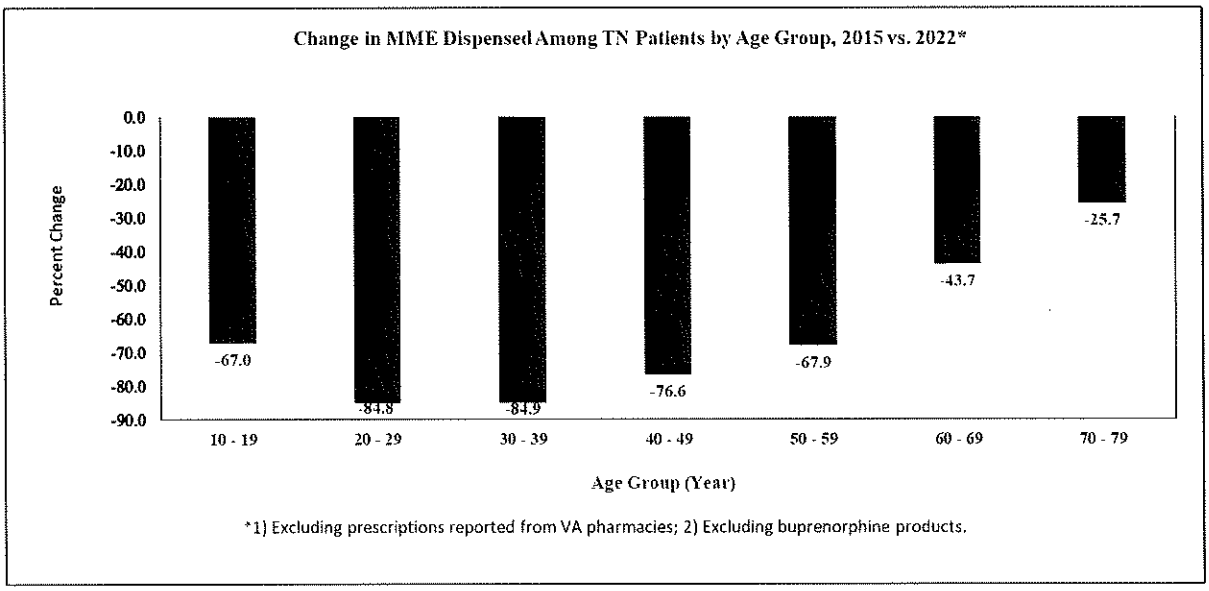
Number of Registrants in the CSMD, 2015 - 2022*		
Year	Registrants	Change (%)
2015	42,835	-
2016	46,576	8.7
2017	47,294	1.5
2018	50,991	7.8
2019	54,642	7.2
2020	58,379	6.8
2021	61,390	5.2
2022	64,717	5.4
*VA registrants were included.		

Law enforcement requests to the CSMD continue to be a critical use of the CSMD as TDH works together to address questionable controlled substance use in TN. During 2022, there were 1,604 law enforcement related requests to the CSMD.

MME Improvements and Concerns by Age Group

The OIA provides an analysis of the MME for TN patients by age groups. Encouragingly, there was a decline in MME dispensed for patients in the various age groups below comparing 2015 to 2022. Improvements in these age groups are an indicator that TDH's efforts are successfully preventing individuals from being overexposed to opioids by the healthcare system.

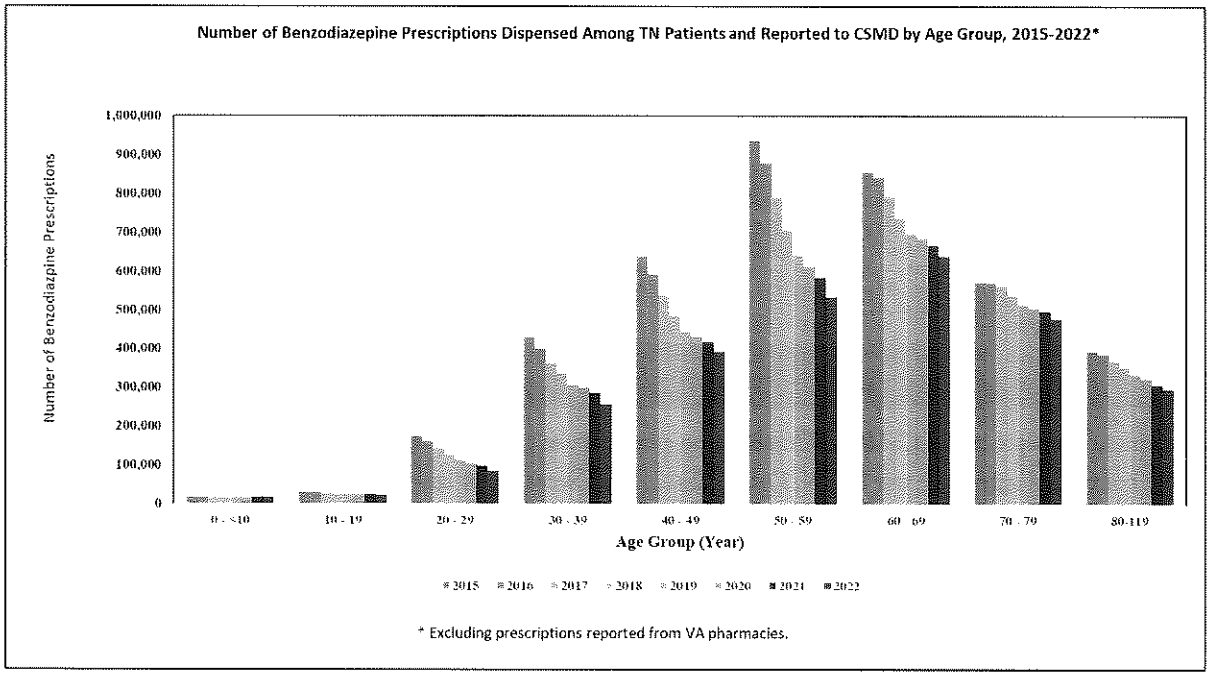
Change in MME Dispensed Among TN Patients by Age Group, 2015 vs. 2022



Trends Related to Utilization of Benzodiazepines

Benzodiazepines, such as alprazolam and diazepam, demonstrated a 33% decrease in prescriptions from 2015 to 2022. For 2022, this class has seen a decline in prescribing and dispensing for people of all age groups.

Number of Benzodiazepine Prescriptions Dispensed Among TN Patients and Reported to CSMD by Age Group, 2015-2022

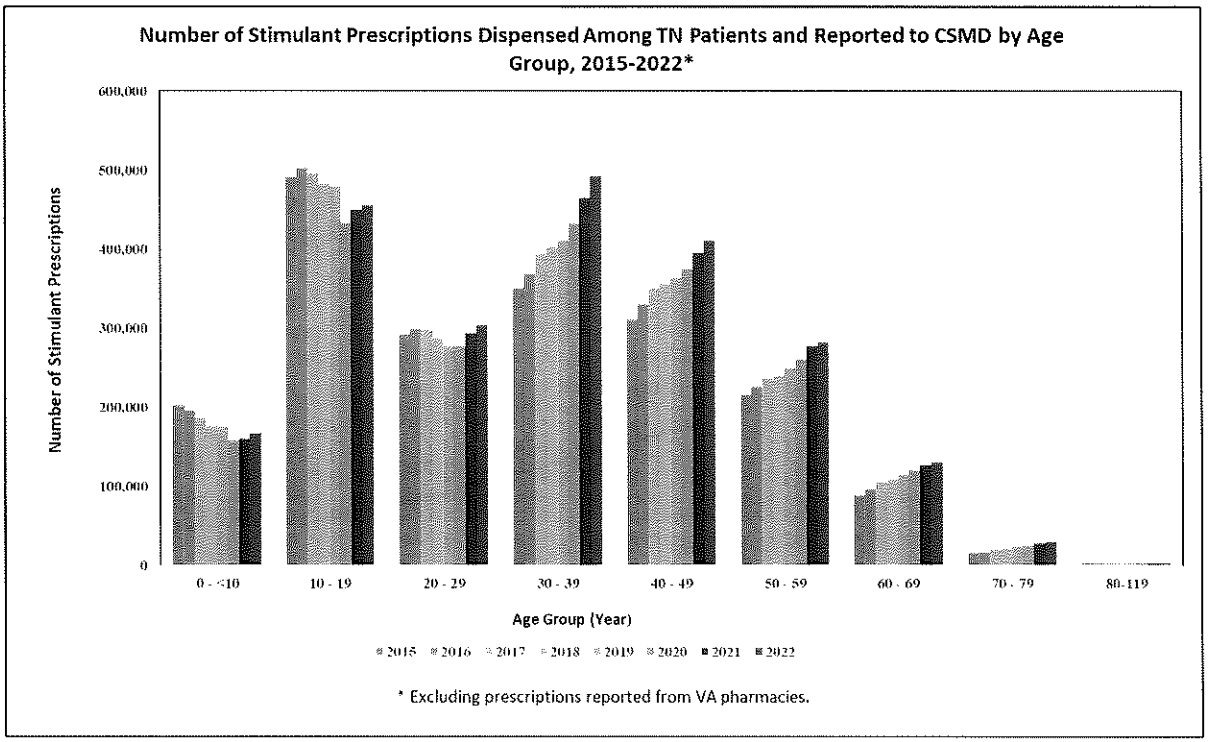


Number of Benzodiazepine Prescriptions Dispensed Among TN Patients and Reported to CSMD by Age Group, 2015-2022*								
Age Group (Year)	2015	2016	2017	2018	2019	2020	2021	2022
0 - <10	17,735	18,251	18,107	18,186	17,762	16,611	16,990	17,038
10 - 19	30,775	30,189	28,656	27,457	27,043	24,991	24,485	24,163
20 - 29	176,271	162,803	143,631	128,713	113,582	105,501	97,053	84,994
30 - 39	430,981	402,330	365,516	338,378	307,368	299,585	286,231	256,463
40 - 49	639,721	593,609	538,119	487,775	446,405	433,796	417,918	392,904
50 - 59	938,132	879,800	790,986	707,024	642,318	612,937	583,729	534,194
60 - 69	856,116	842,171	793,902	739,057	695,788	685,636	666,458	639,647
70 - 79	572,062	570,956	562,855	539,468	514,212	506,396	495,896	477,877
80-119	394,188	387,495	370,674	352,886	335,516	324,382	306,498	296,910
Unknown	7	0	6	1	9	24	18	6
* Excluding benzodiazepine prescriptions reported from VA pharmacies.								

Trends Related to Utilization of Stimulants

The number of prescriptions for stimulants has continued to increase, growing by almost 13% for patients in TN from 2015 to 2022.

Number of Stimulant Prescriptions Dispensed Among TN Patients and Reported to CSMD by Age Group, 2015-2022

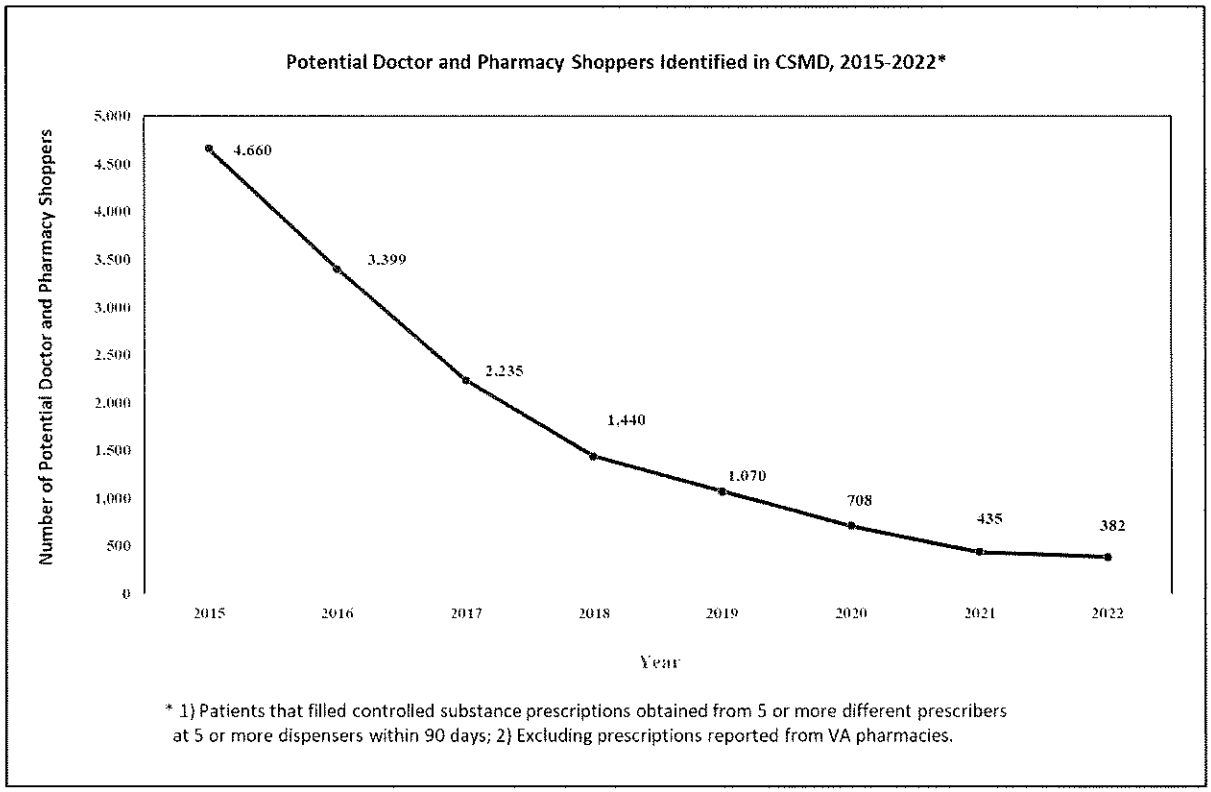


Number of Stimulant Prescriptions Dispensed among TN Patients and Reported to CSMD by Age Group, 2015-2022*								
Age Group (Year)	2015	2016	2017	2018	2019	2020	2021	2022
0 - <10	202,348	196,597	186,455	176,246	174,795	157,657	160,015	167,136
10 - 19	491,036	502,588	495,621	483,390	479,375	433,622	449,170	455,421
20 - 29	292,494	298,755	297,128	287,122	277,397	277,236	293,527	303,338
30 - 39	350,581	368,719	393,380	402,442	410,738	431,883	465,086	492,166
40 - 49	311,010	329,916	350,312	355,619	364,090	374,578	395,827	410,688
50 - 59	215,720	226,072	236,814	240,883	249,887	260,918	277,275	281,814
60 - 69	88,634	96,525	104,764	108,517	114,677	119,983	126,878	130,716
70 - 79	15,658	17,491	19,753	21,920	24,286	25,798	28,266	30,529
80-119	2,967	2,885	2,836	2,994	2,985	2,996	3,112	3,059
Unknown	4	0	2	3	4	7	5	5
* Excluding stimulant prescriptions reported from VA pharmacies.								

Decline in Potential Doctor and Pharmacy Shopping

TDH has defined a potential doctor and pharmacy shopper as an individual visiting five (5) or more prescribers and five (5) or more dispensers in a 90 days (3 months) period, referred to as "5-5-3 criteria". Within TN, there has been a 92% decrease of potential doctor and pharmacy shopping patients from 2015 to 2022.

Potential Doctor and Pharmacy Shoppers Identified in CSMD, 2015-2022



* 1) Patients that filled controlled substance prescriptions obtained from 5 or more different prescribers at 5 or more dispensers within 90 days; 2) Excluding prescriptions reported from VA pharmacies.

Gateway Electronic Health Record (EHR)/Pharmacy Management System Clinical Workflow Integration

The Gateway integration service allows healthcare providers the ability to view their patient's history of controlled substance prescriptions, along with the Clinical Risk Indicators (CRI), within their clinical application (EHR/Pharmacy Management System). Throughout 2022, the CSMD has experienced a significant increase in the number of healthcare providers that are integrated with Gateway. Of the healthcare providers using Gateway, many independent practices experience efficiencies in their workflow to meet statutory regulations of the CSMD with no added financial burden. In order to offer the healthcare providers a no-cost state-wide connection to the Gateway service, the CSMD has received funding from the State prescribing boards for human patients and the Board of Pharmacy until June 30, 2023. Additional funding sources are being sought from programs such as the Opioid Abatement Council to continue this exceptional service throughout the remainder of 2023.

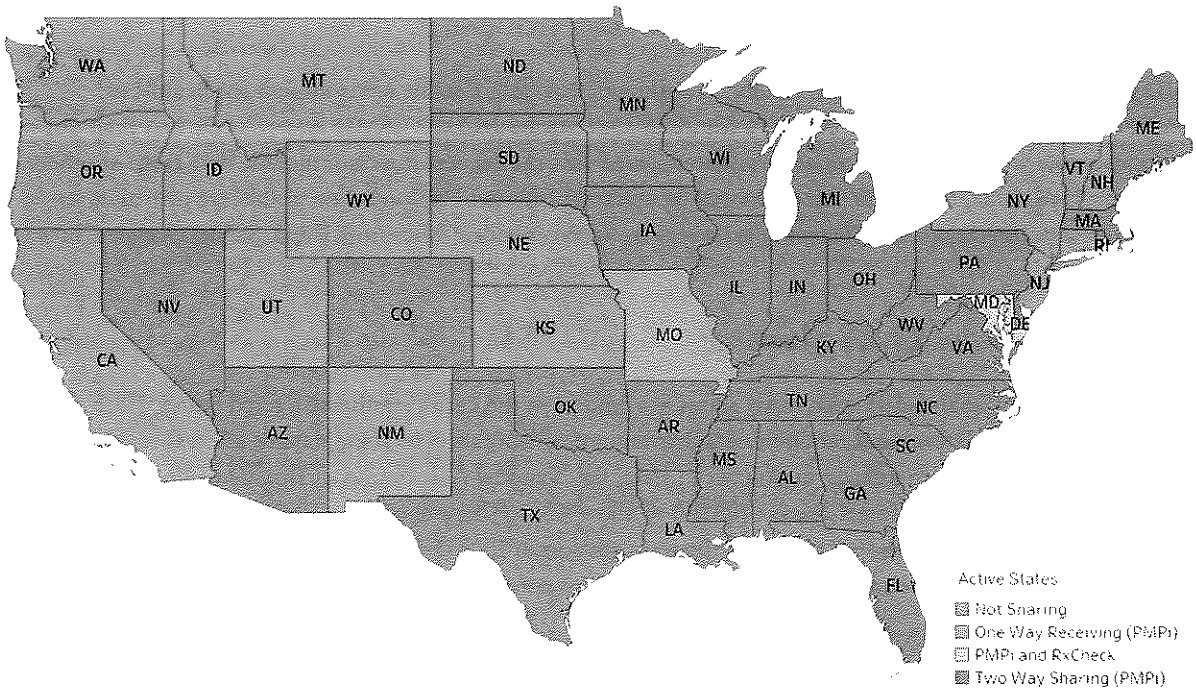
Database Metrics and Browser Recommendations

The CSMD team works diligently with the vendor to continue providing a stable environment for healthcare providers. The CSMD system uptime was 99.9% for 2022. One attribute of the CSMD system is the less than one-second response time when a patient request is initiated, given that the request does not include data from another state. As of June 15th, 2022, Microsoft will no longer be updating Internet Explorer. For healthcare providers to experience the best performance, the following browsers are recommended: Microsoft Edge, Safari, Google Chrome, or Firefox.

Increased Interstate Data Sharing

The CSMD program now shares data with many states in addition to the entire southeast United States. Each state or jurisdiction has unique regulations and requirements that require collaboration to share data to address regulatory compliance. The CSMD program utilizes, at no cost to state, the National Association of Boards of Pharmacy Prescription Monitoring Program InterConnect (PMPi) to allow TN to share data. The PMPi is a highly secure communications exchange platform that facilitates the transmission of PDMP data across jurisdictions to authorized requestors, while ensuring that each PDMP's data-access rules are enforced.

In 2021, TDH connected the CSMD with RxCheck, an interstate data sharing and integration system developed with support from the Bureau of Justice Assistance (BJA) and designed to complement current CSMD activities. It is of no cost to jurisdictions or CSMD users and allows jurisdictions to have an additional option for querying prescription data across jurisdictions. RxCheck also provides functionality for integration with EHRs using nationally recognized interoperability standards. RxCheck is governed jointly by the Integrated Justice Information Systems Institute (IJIS), BJA, and a board of PDMP administrators in connected jurisdictions. Currently, BJA has made a commitment to fund RxCheck and support both the jurisdictions and governing body with training and technical support. TDH continues to work with other jurisdictions on interstate data sharing using RxCheck. Also, TDH continues to work on a pilot using RxCheck for EHR integration with CSMD data. The figure below provides a diagram of our interstate data partnerships with other jurisdictions for both PMPi and RxCheck:



Note: Tennessee receives one way data from Military Health System, and St. Louis County, Missouri

Security Measures

In order to ensure that only those individuals and entities authorized pursuant to the PSA of 2016 have access to the information contained in the database, the CSMD employs the following security measures:

- All entities and individuals who are authorized to access the database in accordance with Tenn. Code Ann. §§ 53-10-306(a)(1)-(6), and (13) must first undergo a registration process during which the CSMD validates their identifying credentials and generates a unique username with instructions to create a password. As of January 26, 2022, all healthcare practitioners registered with the database must maintain a valid e-mail address associated with their database user profile. For healthcare practitioner delegates, an additional approval from their supervising healthcare practitioner is required.
- Any access by a quality improvement committee, as defined in Tenn. Code Ann. §§ 63-1-150 and 68-11-272, must strictly adhere to the requirements of Tenn. Code Ann. §§ 53-10-306(a)(9) and (10). Notably, the quality improvement committee cannot share any information obtained from the database.
- Before the Office of Inspector General, the Medicaid Fraud Control Unit, and the TennCare personnel identified in Tenn. Code Ann. § 53-10-306(a)(7) are given access to the database, they must submit a written request approved by their supervisor. The CSMD staff verifies each requester's credentials before issuing a unique, individual username with instructions to create a password. TDH and the CSMD Committee have partnered with TennCare to provide data sets which are subject to different security protocols as required by TennCare's agreements with various vendors. The data sets provided to TennCare are defined data sets limited to TennCare recipients.
- The CSMD staff has oversight of the data accessed, updated, or viewed by all users through the creation of an audit trail for each user.

- Law enforcement personnel, as defined by Tenn. Code Ann. § 53-10-302, has two methods to obtain information sent to, contained in, and reported from the database in accordance with Tenn. Code Ann. § 53-10-306(a)(11). The first method is a paper process where law enforcement personnel submit a written request with a case number corresponding to a criminal investigation. Before releasing any information, CSMD staff confirms that the requester is on the approved list as required by Tenn. Code Ann. § 53-10-306(a)(11). The second method is via electronic registration and approval. Once electronically registered, law enforcement personnel can obtain the information directly from the CSMD web portal. Both methods create an audit trail.
- Requests for access by persons other than those individuals outlined in Tenn. Code Ann. §§ 53-10-306(a)(1)-(7), (9), and (10) are reviewed by Board of Pharmacy staff and TDH's Office of General Counsel (OGC) to determine whether their requests should be granted. The OGC also reviews all subpoenas and court orders to ensure compliance with the law before releasing any information from the database.
- In 2016, TDH expanded its internal access systems as part of the creation of the TDH IDS, which is designed to efficiently provide usable data access to a limited number of authorized users for various TDH data systems. The security and access related to this project is handled by various partners including Strategic Technology Solutions (STS), OGC, and OIA, in conjunction with oversight from the participating data source programs. The TDH IDS, which maintains certain CSMD data, resides in the State Data Center and is behind the State network firewall that prevents any access outside of the state firewall without the proper approved connection through the state's Virtual Private Network. All data on these servers are encrypted.
- Currently, only administrators and a select group of individuals who have been granted authority by the CSMD program have access to the CSMD data made available through the TDH IDS. Authorized users of the IDS must receive permission from the Director of the OIA and the Director of the TN CSMD Program to access CSMD data from the TDH IDS.

TDH Grants Update

Over the last seven years, TDH has been awarded a number of federal grants aimed at building capacity for public health surveillance and prevention of drug overdose. Recognizing the important role that prescribers and PDMPs play in both surveillance and prevention activities, most of these grants have included activities intended to enhance the CSMD directly or to better utilize CSMD data in prevention, planning, and enforcement. The following grants all support enhancements to the CSMD or analytics projects using data from the CSMD:

- In September 2015, TDH was awarded a grant from the CDC to assist with funding epidemiologic studies pertaining to the nation's Prescription Drug Overdose (PDO) epidemic, enhance and maximize the CSMD, and develop community, insurer, and health system interventions. PDO: Prevention for States (PfS) funding was initially awarded to sixteen states and expanded upon the work already under way through the earlier "PDO: Boost" grant. The purpose of the PfS grant was to provide state health departments with additional resources and support needed to advance interventions for preventing prescription drug overdoses within their own jurisdictions. The PfS grant ended in 2019 with many of the activities continuing under the Overdose Data to Action (OD2A) grant (see below).
- In 2016, TDH was awarded a grant from the Department of Justice (DOJ) under the Harold "Hal" Rogers program to create rapid data-based collaboration between TDH, TBI, and the TDMHSAS. This grant, which ended in 2020, funded improved access for law enforcement and drug courts to the CSMD. It also supported

the collection and integration of law enforcement and mental health data to better identify and react to emerging and existing hotspots, as well as changes in the overdose epidemic. Under the Hal Rogers funding, TDH began convening biweekly meetings of stakeholders from TDH, TBI, and TDMHSAS other state agencies to discuss ongoing activities and trends in the data.

- In 2017, TDH received another CDC grant to enhance surveillance of opioid overdoses, called Enhanced Surveillance of Opioid Overdose in States (ESOOS). For this grant, TDH worked to expand nonfatal overdose data gathering from TDH's syndromic surveillance system; the Electronic Surveillance System for the Early Notification of Community Epidemics (ESSENCE). TDH also gathered and submitted expanded information on fatal overdoses in collaboration with the Office of the State Chief Medical Examiner. These fatal overdose data were submitted to a nationwide system called the State Unintentional Drug Overdose Reporting System (SUDORS). SUDORS data submitted under the ESOOS grant contain detailed information on toxicology and scene investigation for opioid overdose deaths in Tennessee SUDORS is a part of the National Violent Death Reporting System, also sponsored by the CDC.
- In 2018, TDH received two grants from the DOJ's BJA Comprehensive Opioid Abuse Program (COAP). One of these grants fund work to connect the CSMD to RxCheck and partially supported predictive modeling of overdose risk, conducted by VUMC. The other grant funds the integration of EMS overdose data into TDH's IDS, expands overdose and drug surveillance to other substances of concern, and continues the interagency collaborations started under the 2016 Hal Rogers funding.
- In 2019, the CDC combined activities from previous opioid-focused grants into a single, more expansive grant opportunity called OD2A. In addition to the surveillance activities undertaken for the ESOOS grant and the CSMD-related data work for PfS, the OD2A grant expands the funding available for overdose prevention activities across the state. The TDH Opioid Response Coordination Office has spent the last year working closely with regional and metro health departments across the state to start or expand local prevention activities, academic detailing and opioid and overdose education for prescribers, and treatment resource locators. Funding for these activities is anticipated to last through 2022.
- In 2020, TDH was awarded for three years under the FY2020 Hal Rogers grant opportunity to continue enhancements to the CSMD and related data systems. These funds used to extend the amount of time that TDH can offer support for Gateway workflow integration to CSMD users and expand the use of RxCheck for EHR integration. Funds also used to improve the system for receiving drug shipment data from distributors and wholesalers. Another activity supported by this grant continues and expands integration of data from the TBI with TDH data.
- In 2022, TDH was awarded for three years under the FY2022 Hal Rogers grant opportunity to continue enhancements to the CSMD and related data systems. These funds will be used to continue RxCheck interstate data sharing onboarding and pilot an additional facility for EHR integration. Funds will provide support for the hosting and maintenance of the enhanced application for submission of controlled drug shipment data. Funds will also be used to develop an in-depth Education program for CSMD system users. The enhancement of public health and public safety partnership to build a framework for information sharing to address the drug overdose epidemic is another activity supported by this grant.

TDH Recommends the Following Approaches to the Prescription Drug Misuse and Abuse

1. **Prevent opioid and other drug misuse and addiction through an effective and comprehensive approach to prevention.**
    - Implement effective public education/awareness campaigns.

- Ensure that schools and communities implement effective prevention initiatives.
- Reduce availability of and accessibility to addictive opioids and other controlled substances.
- Utilize Prescription Drug Monitoring Programs (PDMPs).
- Participate in Safe Prescribing Initiatives for pain management.
- Utilize the Tennessee Chronic Pain Guidelines located on the TDH website at: https://www.tn.gov/content/dam/tn/health/healthprofboards/pain-management-clinic/ChronicPainGuidelines.pdf
- Support and maximize use of Prescription Take-Back Programs and related options.
- Continue to regulate Pain Management Clinics. (See most recent report on Prescription Drug Abuse and Pain Management Clinics at https://www.tn.gov/content/dam/tn/health/program-areas/reports_and_publications/Pain-Management-Legislative-Report-2021.pdf)

2. **Reduce overdose deaths and other harmful consequences through harm reduction strategies.**
    - Increase community access to naloxone through co-prescribing.
    - Implement Syringe Services Programs (SSP).
    - Monitor and react rapidly to emerging drug trends.

3. **Improve opioid addiction treatment through an effective and comprehensive approach.**
    - Increase treatment capacity.
    - Increase the number of Drug Addiction Treatment Act (DATA)-Waived Providers (https://www.samhsa.gov/medication-assisted-treatment/become-buprenorphine-waivered-practitioner).
    - Increase availability of MAT and Learn how to administer/prescribe MAT. (https://www.samhsa.gov/medication-assisted-treatment/practitioner-resources).
    - Provide comprehensive recovery support services following treatment.
    - Work to alleviate the stigma associated with seeking treatment for substance use disorder.

In summary, the drug epidemic continues to have a major impact on the State of Tennessee, taking more lives than motor vehicle accidents and suicides combined. Real, effective solutions will require a shift in the way TDH thinks about and respond to substance use disorders, including our abilities to prevent, treat, destigmatize, and advance harm reduction through the dissemination of evidence-based practices.

Conclusion

The CSMD, along with the Gateway integration, is a valuable service to inform healthcare providers of a patient's controlled substance prescription history before, during, and after a treatment plan has been decided. The CRI displayed on the reports inform healthcare providers of potential high risk patients. The information in the CSMD proves to be useful in improving patient safety and quality of care.

The epidemic of opioid misuse and abuse has continued to change. Overdose deaths continue to increase; some involving illicit opioids, mostly fentanyl. TDH is working hard to better understand data from various reporting systems and work collaboratively with other agencies to improve prevention opportunities. Data from the CSMD are at the center of numerous innovative efforts using TDH data to understand and predict overdose risk, educate patients and prescribers, decrease inappropriate prescribing, and improve access to treatment.

A multi-faceted approach, including prevention of exposure to opioids and other controlled substances, early diagnosis and treatment of Substance Use Disorder (SUD), and the life-saving work of law enforcement to reduce

availability of illicit, addictive substances are all needed to reverse the trend. While actions at the community level are most impactful, intervention is also needed at the state and federal levels.

TDH would like to provide a special thanks to the current and past members of the legislature, the CSMD Committee, and the leadership of other federal and state agencies as we continue to work together in preventing harm to the public stemming from the drug epidemic.

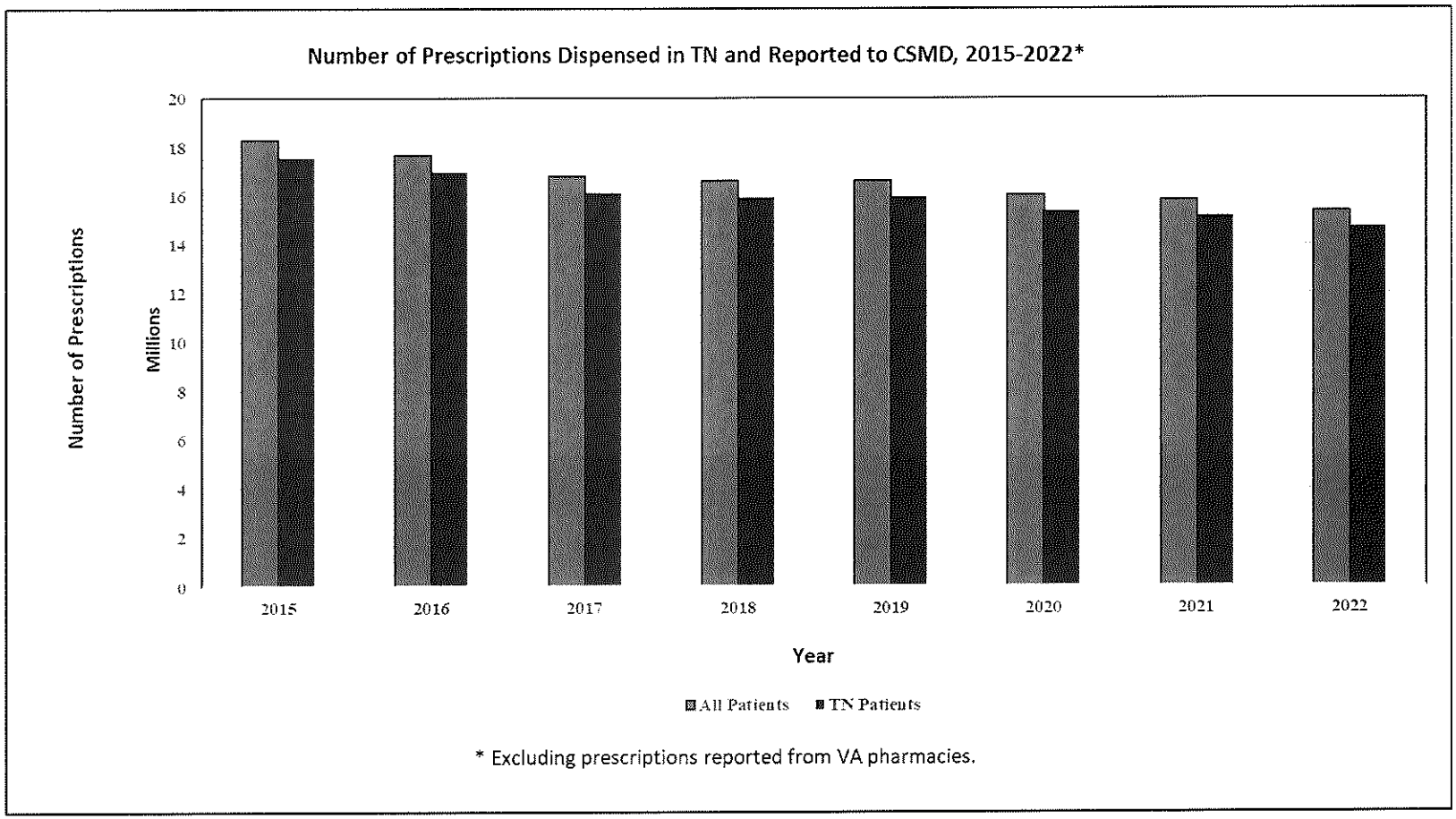
2022 Members of the CSMD Committee

Member Name	Board
John McGraw, MD	Board of Medical Examiners
Robert Caldwell, DMD	Board of Dentistry
Amber Wyatt, APRN	Board of Nursing
Kurt Steele, OD	Board of Optometry
Shant Garabedian, DO	Board of Osteopathy
Adam Rodgers, DPh	Board of Pharmacy
Bhekumuzi Khumalo, DPM	Board of Podiatry
Montgomery McInturff, DVM	Board of Veterinary Medical Examiners
Brett Reeves, PA-C	Board of Physician Assistants
James Diaz-Barriga	Public Member Board of Medical Examiners
Jake Bynum	Public Member Board of Pharmacy

Appendix

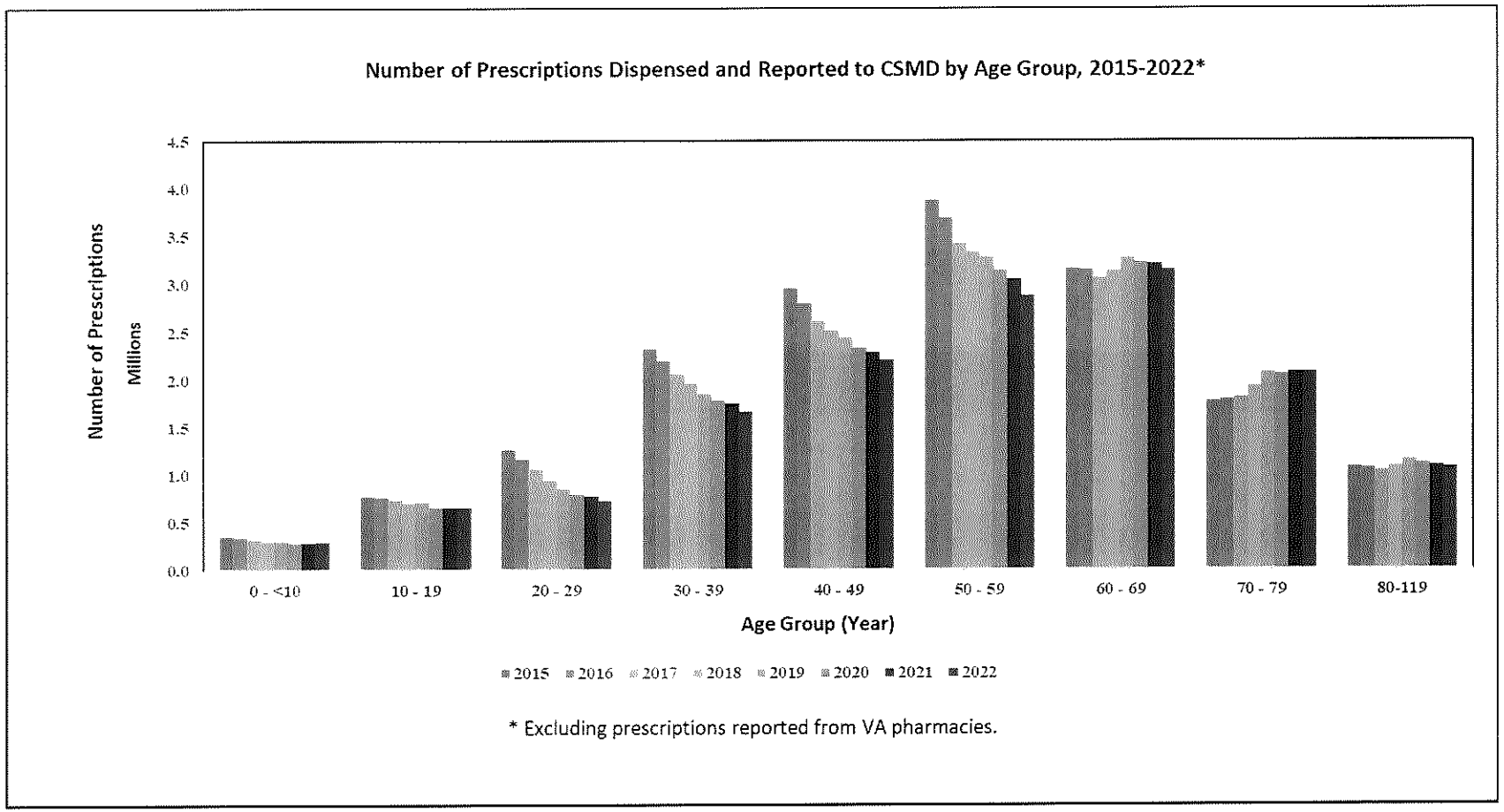
The CSMD data used for this report were downloaded on January 4, 2023. MME calculations were only limited to the opioid products that were listed in CDC's MME conversion tables from 2011 to 2021. The CDC has adjusted certain drug conversion factors over time for various reasons. If a drug had different MME conversion factors in different version tables, the data analysis provided through 2021 used the conversion factor provided in the latest version of the CDC table. Therefore, different MME results for a similar indicator would be expected for CSMD annual reports published in previous years. Prescriptions and MME identified for TN patients were based on a patient's state listed as 'TN' or state Federal Information Processing Standard (FIPS) code of '47' on the patient's address associated with a prescription. Otherwise, the patient was identified as a non-TN patient. Classification of controlled substances was based on a combination of CDC tables and 2022 IBM Micromedex Red Book® Select. If a drug in the CSMD was not classified, the drug was reported as "Other" in this report. Due to improvements in the classification of prescriptions reported to the CSMD, some totals in this year's report may appear larger than in previous years. In particular, stimulant counts have increased with the addition of Schedule III and IV stimulants, and gabapentin prescriptions are now classified separately. These prescriptions were previously classified in the "Other" category. Please note that human and animal prescription data are included in this report as it relates to the data analysis through 2022.

Number of Prescriptions Dispensed in TN and Reported to CSMD, 2015-2022



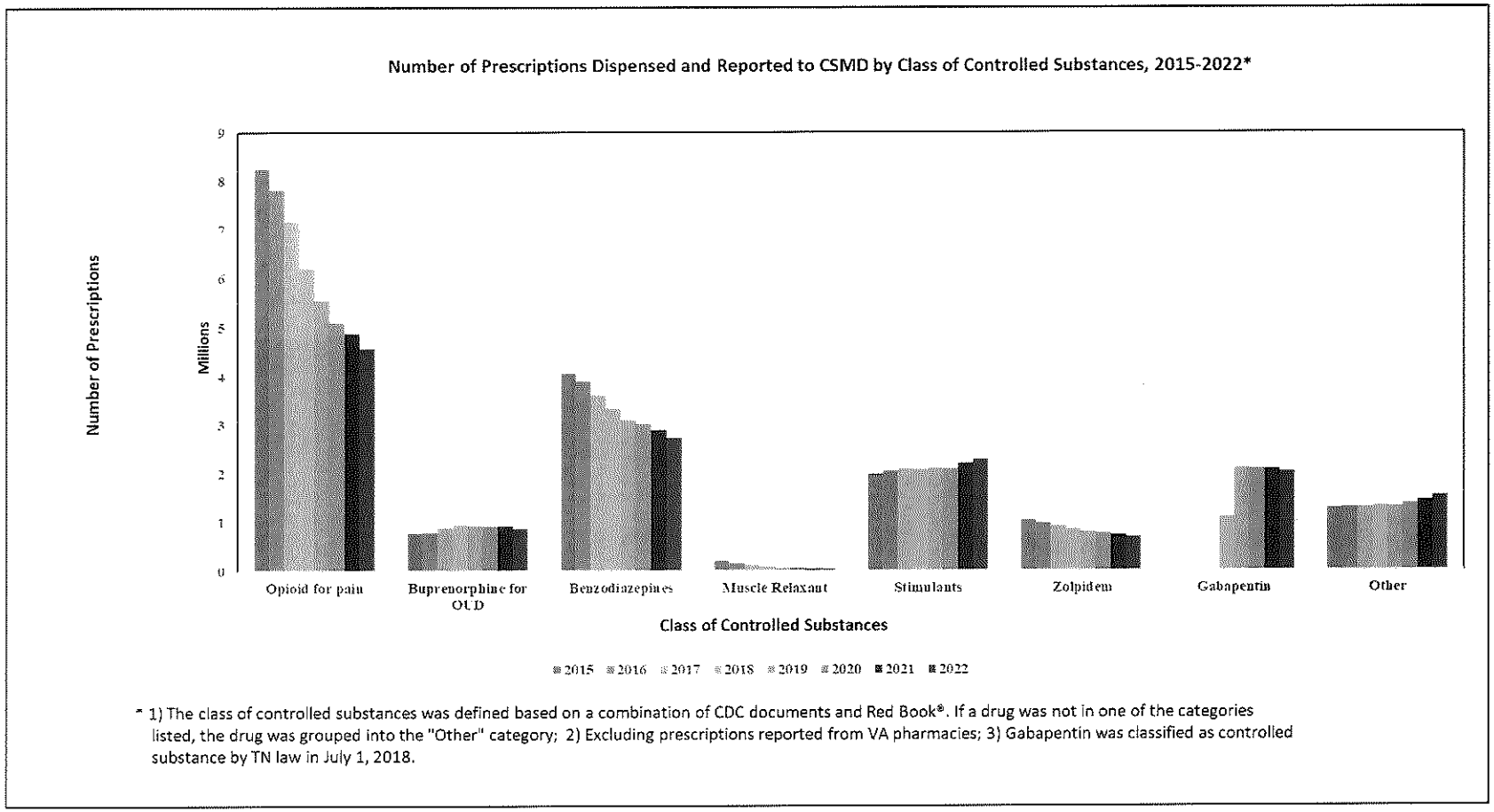
Number of Prescriptions Dispensed in TN and Reported to CSMD, 2015-2022*				
Year	All Patients	Change (%)	TN Patients	Change (%)
2015	18,295,536	-	17,551,826	-
2016	17,666,086	-3.4	16,944,743	-3.5
2017	16,798,181	-4.9	16,103,786	-5.0
2018	16,595,076	-1.2	15,910,785	-1.2
2019	16,598,589	0.0	15,935,606	0.2
2020	16,008,590	-3.6	15,368,570	-3.6
2021	15,816,439	-1.2	15,165,725	-1.3
2022	15,362,626	-2.9	14,705,446	-3.0
*Excluding prescriptions reported from VA pharmacies				

Number of Prescriptions Dispensed and Reported to CSMD by Age Group, 2015- 2022



Number of Prescriptions Dispensed and Reported to CSMD by Age Group, 2015-2022*								
Age Group	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
0 - <10	352,532	340,283	319,025	299,862	303,064	280,642	284,485	291,602
10 - 19	769,011	766,058	735,223	708,443	715,395	650,296	656,152	655,839
20 - 29	1,262,946	1,164,946	1,053,236	942,372	850,798	795,052	774,472	727,511
30 - 39	2,318,792	2,186,626	2,050,903	1,953,767	1,845,451	1,779,999	1,751,955	1,658,774
40 - 49	2,957,827	2,797,635	2,612,061	2,513,324	2,435,048	2,330,970	2,283,007	2,202,269
50 - 59	3,875,502	3,686,995	3,425,791	3,336,082	3,282,890	3,138,168	3,048,680	2,875,490
60 - 69	3,162,738	3,147,551	3,060,231	3,140,824	3,272,983	3,229,551	3,210,385	3,147,282
70 - 79	1,772,789	1,787,633	1,811,790	1,926,313	2,073,999	2,050,389	2,072,768	2,074,480
80-119	1,079,653	1,067,011	1,035,502	1,089,765	1,155,739	1,113,135	1,083,525	1,071,976
Unknown	36	5	24	33	239	368	296	223
***Excluding prescriptions reported from VA pharmacies.**								

Number of Prescriptions Dispensed and Reported to CSMD by Class of Controlled Substances, 2015 - 2022

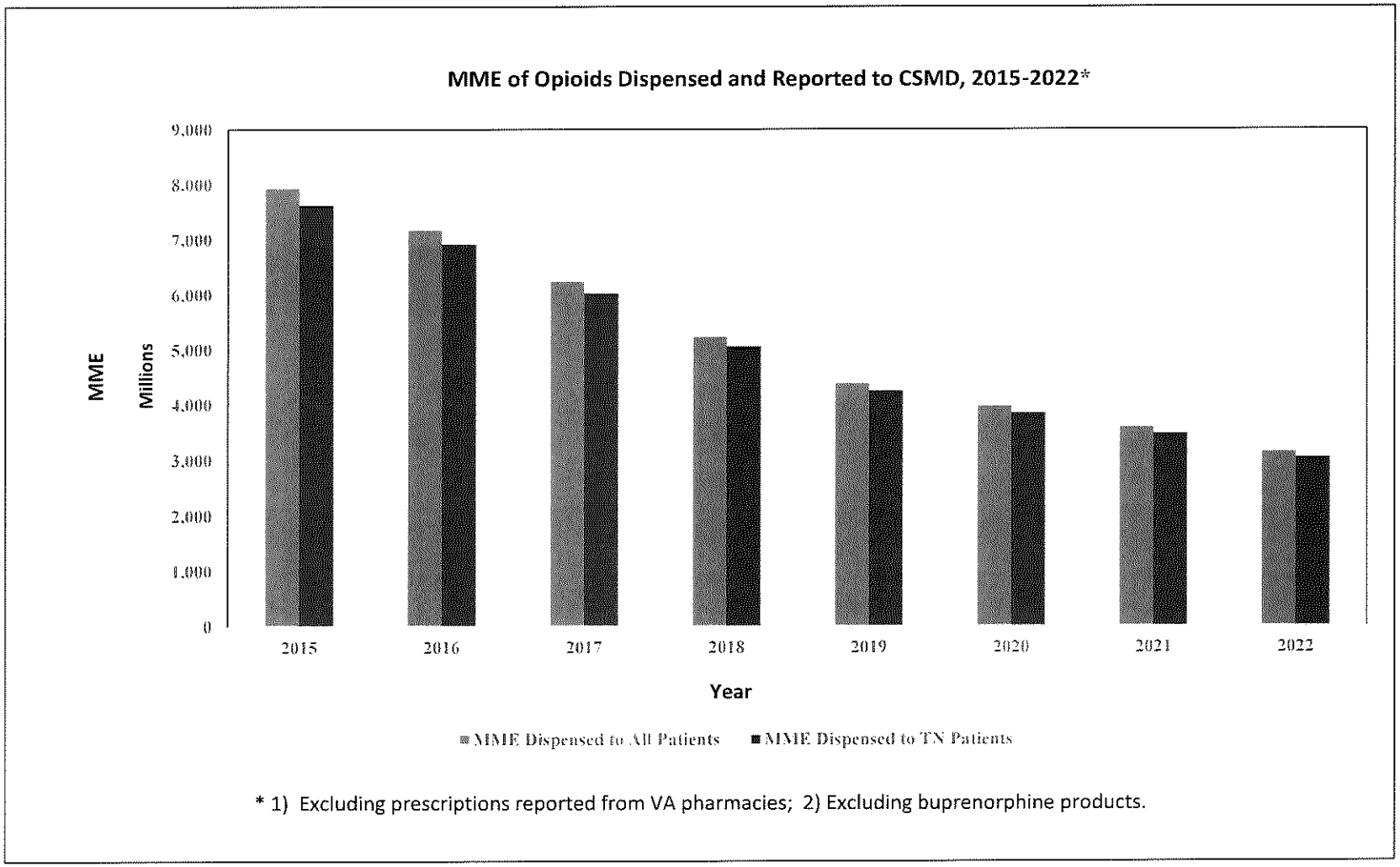


* 1) The class of controlled substances was defined based on a combination of CDC documents and Red Book®. If a drug was not in one of the categories listed, the drug was grouped into the "Other" category; 2) Excluding prescriptions reported from VA pharmacies; 3) Gabapentin was classified as controlled substance by TN law in July 1, 2018.

Number of Prescriptions Dispensed and Reported to CSMD by Class of Controlled Substances, 2015-2022*								
Year	Opioid for pain	Buprenorphine for OUD	Benzodiazepines	Muscle Relaxant	Stimulants	Zolpidem	Gabapentin	Other
2015	8,249,955	764,702	4,055,988	208,059	1,970,452	1,029,191	-	1,271,754
2016	7,821,527	782,890	3,887,604	159,862	2,039,548	965,376	-	1,283,409
2017	7,165,505	873,658	3,612,452	117,475	2,087,065	901,018	-	1,285,995
2018	6,214,102	932,680	3,338,945	88,390	2,079,136	839,998	1,102,717	1,314,817
2019	5,551,313	925,509	3,100,003	65,322	2,098,234	786,627	2,103,624	1,304,974
2020	5,092,235	912,173	3,009,859	55,467	2,084,678	762,730	2,089,206	1,362,222
2021	4,869,725	905,562	2,895,276	48,734	2,199,161	729,951	2,079,210	1,438,106
2022	4,570,811	853,454	2,724,196	41,857	2,274,872	686,924	2,031,414	1,521,918

* 1) The class of controlled substances was defined based on a combination of CDC documents and Red Book®. If a drug was not in one of the categories listed, the drug was grouped into the "Other" category; 2) Excluding prescriptions reported from VA pharmacies; 3) Gabapentin was classified as a controlled substance by TN law on July 1, 2018.

MME of Opioids Dispensed and Reported to CSMD, 2015-2022



* 1) Excluding prescriptions reported from VA pharmacies; 2) Excluding buprenorphine products.

MME of Opioids Dispensed and Reported to CSMD, 2015-2022*				
Year	MME Dispensed to All Patients	Change (%)	MME Dispensed to TN Patients	Change (%)
2015	7,925,746,912	-	7,624,708,803	-
2016	7,172,162,050	-9.5	6,910,049,409	-9.4
2017	6,239,031,569	-13.0	6,019,153,313	-12.9
2018	5,234,024,928	-16.1	5,055,756,094	-16.0
2019	4,382,075,734	-16.3	4,242,229,571	-16.1
2020	3,972,947,526	-9.3	3,839,778,335	-9.5
2021	3,589,128,053	-9.7	3,466,719,028	-9.7
2022	3,143,777,378	-12.4	3,038,681,008	-12.3
* 1) Excluding prescriptions reported from VA pharmacies; 2) Excluding buprenorphine products.				

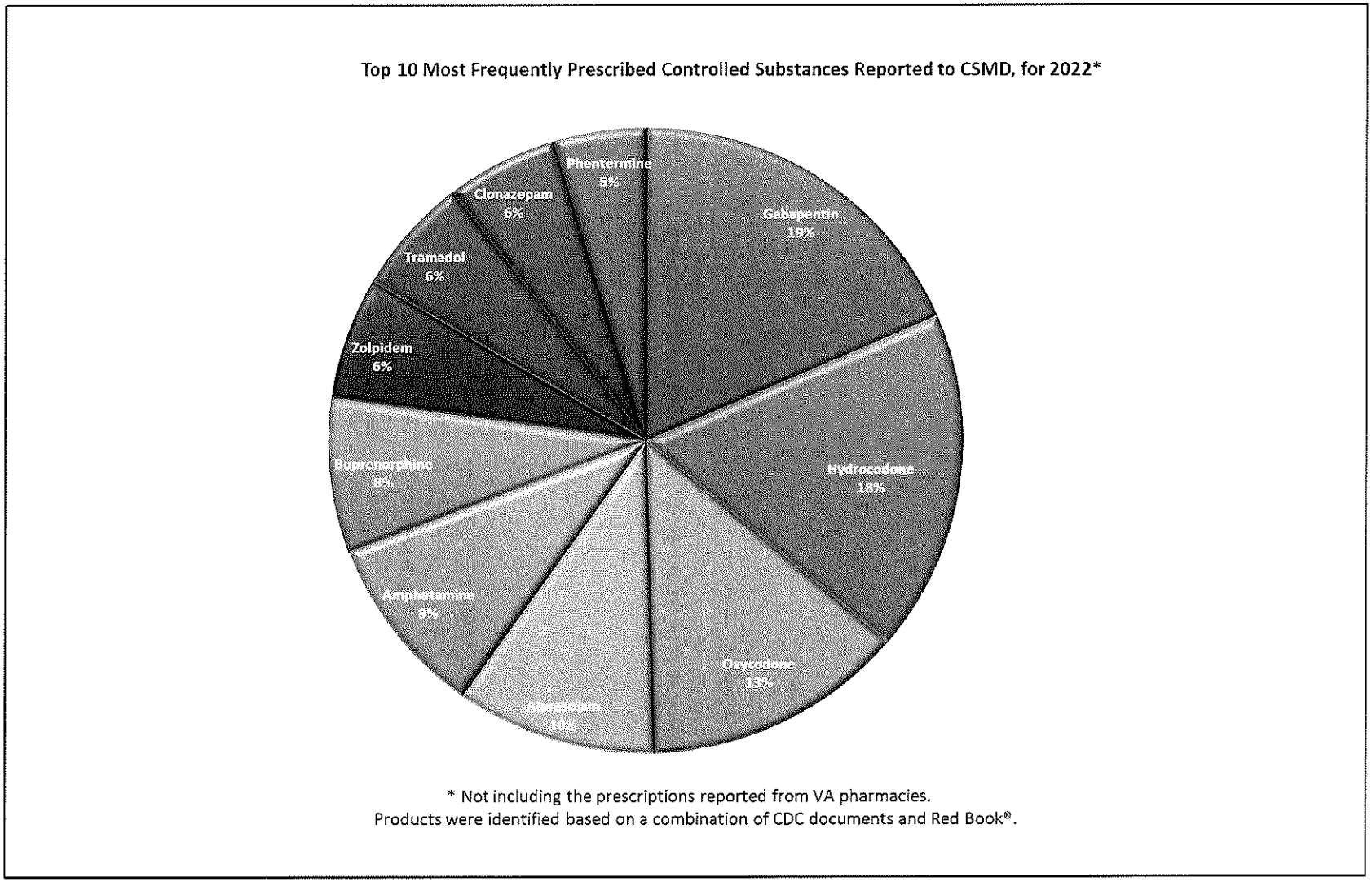
MME for Long-Acting Opioids Dispensed and Reported to CSMD, 2015-2022

MME for Long-Acting Opioids Dispensed and Reported to CSMD, 2015-2022*			
Year	**All patients**	**TN patients**	**Change among TN patients (%)**
2015	2,552,416,331	2,454,261,488	-
2016	2,125,146,407	2,046,119,069	-16.6
2017	1,630,515,953	1,569,108,862	-23.3
2018	1,208,089,115	1,164,963,620	-25.8
2019	909,734,071	878,420,518	-24.6
2020	739,777,906	711,725,759	-19.0
2021	592,022,110	568,008,330	-20.2
2022	461,098,916	442,462,163	-22.1
***1) The classes of controlled substances were defined based on CDC documents; 2) Excluding prescriptions reported from VA pharmacies; 3) Excluding buprenorphine products.**			

MME for Short-Acting Opioids Dispensed and Reported to CSMD, 2015-2022

MME for Short-Acting Opioids Dispensed and Reported to CSMD, 2015-2022*			
Year	**All patients**	**TN Patients**	**Change among TN Patients (%)**
2015	5,373,149,747	5,170,275,014	-
2016	5,046,865,752	4,863,792,316	-5.9
2017	4,608,388,796	4,449,942,365	-8.5
2018	4,025,802,808	3,890,691,743	-12.6
2019	3,472,220,639	3,363,720,544	-13.5
2020	3,233,074,178	3,127,990,933	-7.0
2021	2,997,035,457	2,898,671,410	-7.3
2022	2,682,631,803	2,596,177,541	-10.4
*** 1) The classes of controlled substances were defined based on CDC documents; 2) Excluding prescriptions reported from VA pharmacies; 3) Excluding buprenorphine products.**			

Top 10 Most Frequently Prescribed Controlled Substances Reported to CSMD for 2022



Acronyms

Bureau of Justice Assistance	BJA
Centers for Disease Control and Prevention	CDC
Clinical Risk Indicators	CRI
Comprehensive Opioid Abuse Program	COAP
Controlled Substance Monitoring Database	CSMD
Department of Justice	DOJ
Drug Addiction Treatment Act	DATA
Drug Overdose Reporting	DOR
Electronic Health Record	EHR
Electronic Surveillance System for the Early Notification of Community Epidemics	ESSENCE
Emergency Medical Services	EMS
Enhanced Prescriber Report	EPR
Enhanced Surveillance of Opioid Overdose	ESOOS
Federal Information Processing Standard	FIPS
Integrated Data System	IDS
Integrated Justice Information Systems Institute	IJIS
Medication-Assisted Treatment	MAT
Morphine Milligram Equivalents	MME
Neonatal Abstinence Syndrome	NAS
Office of General Counsel	OGC

Office of Informatics and Analytics	OIA
Overdose Data to Action	OD2A
Prescription Drug Monitoring Program	PDMP
Prescription Drug Overdose	PDO
Prescription Monitoring Program InterConnect	PMPi
Prescription Safety Act	PSA
Prevention for States	PfS
State Unintentional Drug Overdose Reporting System	SUDORS
Strategic Technology Solutions	STS
Substance Use Disorder	SUD
Syringe Services Programs	SSP
Tennessee	TN
Tennessee Bureau of Investigations	TBI
Tennessee Department of Health	TDH
Tennessee Department of Mental Health and Substance Abuse Services	TDMHSAS
Vanderbilt University Medical Center	VUMC
Veterans Administration	VA
Veterans Health Administration	VHA

Tennessee Controlled Substance Monitoring Database
Director, Tennessee Controlled Substance Monitoring Database
665 Mainstream Drive, 2nd Floor Nashville, Tennessee 37243
https://www.tn.gov/health/csmd/

Tennessee Diabetes Action Report - February 2023 Addendum and Erratum

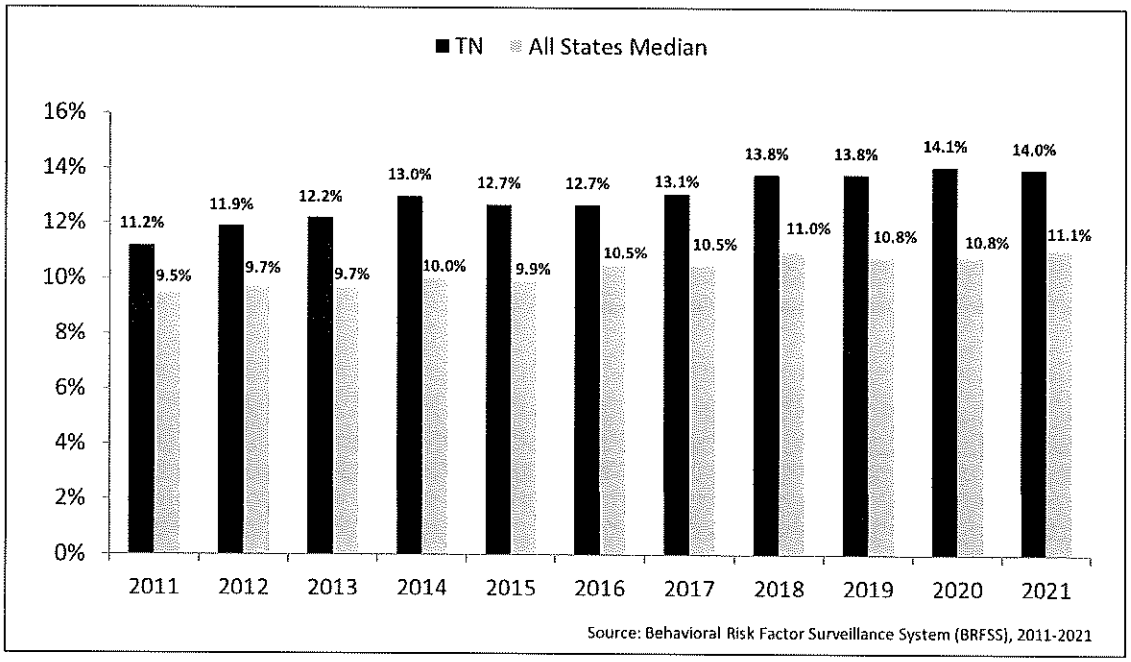
Addendum

This addendum is intended to provide updates reflecting the most recent 2021 Tennessee data for both the Behavioral Risk Factor Surveillance Survey (BRFSS) and the Youth Risk Behavior Survey (YRBS). The 2021 information was unavailable at the time of the original release of the Diabetes Action Report.

Corresponding to page 10 of the report, please note that the narrative and **Figure 1** below are now based on the latest 2021 BRFSS data.

Figure 1 displays the prevalence of adults with diagnosed diabetes in Tennessee and the U.S between 2011 and 2021. Tennessee's rate is consistently higher than the national level. Based on 2021 BRFSS data, Tennessee ranks 46th in diabetes prevalence among all states.

Figure 1: Prevalence of Adults with Diagnosed Diabetes



Corresponding to page 12 of the report, please note that the narrative and **Table 4** below are now based on the latest 2021 BRFSS data.

Table 4 demonstrates how Tennessee compares to other states in "upstream" behaviors known to contribute to and complicate diabetes prognosis. According to 2021 BRFSS data, Tennessee ranks in the bottom quartile of states in adult fruit consumption,

physical inactivity, tobacco use, hypertension, and high cholesterol. Tennessee ranks 34th in the U.S. for obesity (adults with a BMI of 30 or higher).

Table 4: Modifiable Risk Factors for Type 2 Diabetes and Associated Prevalence Measures among Tennessee Adults

Risk Factor	BRFSS Indicator	TN	U.S. Rank*	among TN adults w/ diabetes
Nutrition	Adults consuming < 1 fruit per day	46.1%	46th	49.7%
	Adults consuming < 1 vegetable per day	19.7%	31st	24.2%
Obesity	Percentage of adults with BMI of 30.0 or higher	35.0%	34th	55.8%
Sedentary Lifestyle (Physical Inactivity)	Percentage of adults who reported no physical activity or exercise other than their regular job in the past 30 days	28.7%	44th	44.4%
Tobacco Use	Percentage of adults who are smokers	19.7%	47th	20.5%
High Blood Pressure	Percentage of adults who reported being told by a health professional that they have high blood pressure	37.7%	43rd	76.2%
High Cholesterol	Percentage of adults who reported having their cholesterol checked and were told by a health professional that it was high	38.0%	48th	65.9%

Note: * U.S. rank is based on the age-adjusted prevalence.

Source: Tennessee Behavioral Risk Factor Surveillance Survey (BRFSS), 2021

Corresponding to page 13 of the report, please note that Table 5 below is now based on the latest 2021 YRBS data with a comparison to 2019 data.

Table 5: Modifiable Risk Factors for Type 2 Diabetes and Associated Prevalence Measures among Tennessee Youth

Risk Factor	YRBS Indicator	TN (2021)	TN (2019)	U.S. Rank* (# Participating States)
Nutrition	Did not eat fruit or drink 100% fruit juices (during the 7 days before the survey)	12.4%	11.1%	39th (42)
	Did not eat vegetables (during the 7 days before the survey)	10.5%	11.0%	28th (36)
Obesity	BMI >= 95th percentile based on sex- and age-specific CDC growth charts	18.3%	20.9%	41st (44)
Sedentary Lifestyle (Physical Inactivity)	Were not physically active for a total of at least 60 minutes on at least one day (during the 7 days before the survey)	20.8%	19.1%	30th (44)
Tobacco Use	Used cigarettes, smokeless tobacco, cigars or electronic vapor products on at least 1 day during the 30 days before the survey	20.7%	27.9%	19th (35)

Note: * U.S. rank is based on the age-adjusted prevalence. At the time this addendum was released, estimates for other states were not yet available for 2021.

Source: Tennessee Youth Risk Behavior Surveillance System (YRBSS), 2019 and 2021

Erratum

On page 10 of the report, please note that Figure 2 and its accompanying text are based on 2019 **one-year** estimates and not 2018-2020 **three-year** estimates.